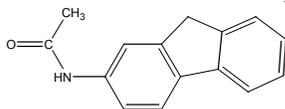


2-ACETYLAMINOFLUORENE

CAS No. 53-96-3

First Listed in the *Second Annual Report on Carcinogens*



CARCINOGENICITY

2-Acetylaminofluorene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals. When incorporated in the diet, 2-acetylaminofluorene induced increased incidences of carcinomas of the urinary bladder and subcutaneous carcinomas on the face (possibly arising from the auditory canal) in rats of both sexes (Wilson *et al.* 1941). The same route of administration of 2-acetylaminofluorene in another study induced increased incidences of carcinomas of the liver and urinary bladder in mice of both sexes (Staffa and Mehlman 1980).

In a separate study, incorporation in the diet induced a high incidence of hepatocellular carcinomas, testicular mesotheliomas, and Zymbal gland tumors in rats (Cabral and Neal 1983). Because of the potency of this compound and its known carcinogenic action, it is used extensively as a positive control for assaying other compounds for carcinogenicity. NTP and IARC have not reviewed 2-acetylaminofluorene for evidence of its carcinogenicity in experimental animals.

No data were available to evaluate the carcinogenicity of 2-acetylaminofluorene in humans.

PROPERTIES

2-Acetylaminofluorene occurs as light tan crystalline powder or needles. It is insoluble in water and soluble in alcohols, glycols, ether, acetic acid, and fat solvents. 2-Acetylaminofluorene is available as a grade that is 95 to 98% pure. When heated to decomposition, it emits toxic fumes of nitrogen oxides (HSDB 2000).

USE

2-Acetylaminofluorene is used as a positive control by toxicologists to study the carcinogenicity and mutagenicity of aromatic amines. 2-Acetylaminofluorene was intended for use as a pesticide, but it was never marketed because of its carcinogenicity in experimental animals (Sittig 1991, HSDB 2000).

PRODUCTION

2-Acetylaminofluorene is not currently produced in the U.S. It is imported and distributed by several specialty chemical companies (HSDB 2000). The 1998 *Chemical Buyers Directory* listed one U.S. supplier of the compound (Tilton 1997). In 2001, Chem Sources

(2001) identified 12 suppliers in the U.S. A typical distributor stocks approximately 9 lb of 2-acetylaminofluorene and typically sells it in 1-, 5-, or 25-g quantities. Total estimated U.S. usage is therefore less than 20 lb per year (Sittig 1985). The TSCA Inventory reported one producer of 2-acetylaminofluorene in 1977, but no production volume was reported (TSCA 1979).

EXPOSURE

The primary routes of potential human exposure to 2-acetylaminofluorene are inhalation and dermal contact. Chemists, chemical stockroom workers, and biomedical researchers have the greatest risk of occupational exposure to 2-acetylaminofluorene. The National Occupational Exposure Survey (1981-1983) indicated that 896 total workers, including 299 women, potentially were exposed to 2-acetylaminofluorene in the workplace (NIOSH 1984). For the general population, exposure will most likely be minimal, since its release to the environment from artificial sources is probably not significant (HSDB 2000).

REGULATIONS

EPA regulates 2-acetylaminofluorene under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA). 2-Acetylaminofluorene has been designated as a hazardous constituent of waste and a potential human carcinogen under RCRA. Based on this designation, a reportable quantity (RQ) of 1 lb has been established under CERCLA. 2-Acetylaminofluorene is subject to reporting requirements under SARA. Specific categories of stationary sources that emit (or have potential to emit) 2-acetylaminofluorene are also regulated by EPA under the Clean Air Act (CAA).

NIOSH recommends that occupational exposure to 2-acetylaminofluorene be limited to the lowest feasible concentration. OSHA has promulgated a standard designating protective clothing and hygiene procedures for anyone handling, storing, or working with 2-acetylaminofluorene, and special engineering requirements for its manufacture and processing. OSHA regulates 2-acetylaminofluorene under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table 2.

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